



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,487	05/10/2004	Cheng-Shih Lee	12875-US-PA	3486
31561	7590	04/10/2008	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE			MCDONALD, RODNEY GLENN	
7 FLOOR-1, NO. 100				
ROOSEVELT ROAD, SECTION 2			ART UNIT	PAPER NUMBER
TAIPEI, 100			1795	
TAIWAN				
			NOTIFICATION DATE	DELIVERY MODE
			04/10/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/709,487	LEE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rodney G. McDonald	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 March 2008.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-6,8-11 and 13-15 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,3-6,8-11 and 13-15 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.                                                         | 6) <input type="checkbox"/> Other: _____ .                        |

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on March 25, 2008 has been entered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 6, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (Korea 2001- 009208) in view of Demaray et al. (U.S. Pat. 5,330,628) and Sawada et al. (U.S. Pat. 5,135,629).

Regarding claim 1, Jang et al. teach an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside the interior space of the bottom portion (100) to move with the bottom portion (100). (See Abstract; Figure)

Regarding claim 6, Jang et al. teach a sputtering apparatus for sputtering a target (160) material onto an object (150). Jang et al. teach a holding base disposed opposite to the target material (110). Jang et al. teach an adjustable collimator (170a, 170b, 170c) disposed between the holding base (140) and the target material (160). The adjustable collimator includes an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside the interior space of the bottom portion (100) to move with the bottom portion (100).

Regarding claim 11, Jang et al. teach a sputtering apparatus for sputtering a target (160) material onto an object (150). Jang et al. teach a holding base (140) disposed opposite to the target material (110). Jang et al. teach an adjustable collimator (170b) disposed between the holding base (140) and the target material (160). The adjustable collimator (170b) disposed on the holding base to cover the object (150) so that the adjustable collimator (170b) moves with the holding base (140). The adjustable collimator includes an adjustable main body having an interior space a top portion (110), a bottom portion (100) and an adjuster (130a) between the top portion (110) and the bottom portion (100), the adjuster (130a) being adapted for adjusting a relative distance between the top portion (110) and the bottom portion (100); a first collimating element (170a), fixed inside the interior space of the top portion (110) to move with the top portion (110) and a second collimating element (170b), fixed inside the interior space of the bottom portion (100) to move with the bottom portion (100).

The differences between Jang et al. and the present claims is that the shields being considered collimating elements is not discussed (Claims 1, 6, 11), the chamber is not discussed (Claims 6 and 11) and a mask covering the bottom portion of the adjustable main body below the first collimating element and surrounding the second collimating element (Claims 1, 6, 11).

Regarding claims 1, 6, 11, assuming that the shields are not considered to be a collimating element, Demaray et al. teach incorporating moving collimator the same as the moving shield in Jang et al. Specifically Demaray et al. teach in

Fig. 14 a filter 63 (i.e. collimator) formed in two sections 63a and 63b which are movable axially relative to each other, and the aspect ratio is changed by changing the spacing between the sections, which effectively changes the height of the cells. (Column 8 lines 62-68)

The motivation for utilizing moving collimators is that it allows filling a hole which has a continually changing aspect ratio. (Column 8 lines 54-61)

Regarding claims 6, 11, Demaray et al. teach utilizing a housing (i.e. chamber) for the elements of sputtering. (Column 2 lines 41-44)

Regarding a mask covering the bottom portion of the adjustable main body below the first collimating element and surrounding the second collimating element (Claims 1, 6, 11), Sawada et al. teach providing a masking element in the form of a foil, a corrugated metal foil or a foil with a plurality of irregularities provided on elements of the chamber including walls, shutter, and other parts of equipment. (Column 1 lines 47-51; Column 2 lines 28-37; Column 3 lines 54-60)

It would be obvious to include the masking means of Sawada et al. in the apparatus of Jang et al. to cover the bottom portion of the main body below the first collimating element because it allows for preventing contamination during deposition. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Jang et al. by utilizing the features of Demaray et al. and the features of Sawada et al. because it allows for filling a hole and for preventing contamination during deposition.

Claims 3, 8, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. and Sawada et al. as applied to claims 1, 6, 11 above, and further in view of Harker et al. (U.S. Pat. 3,690,635).

The difference not yet discussed is the use of a rough adjustment element and a fine adjustment element. (Claims 3, 8, 13)

Regarding claims 3, 8, 13, Jang et al. already teach rough adjustment means in the form of bellows. (See Jang et al. discussed above) Harker et al. teach a series of collimators. (Column 3 lines 58-68; Column 4 lines 1-16) The collimators include fine adjustment means in the form of projections and stops in order to adjust the distance. (Column 4 lines 1-19)

The motivation for utilizing fine adjustment means is that it allows adjustment of the distances for the individual collimators. (Column 4 lines 1-14)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Harker et al. because it allows for adjustment of the distances for the individual collimators.

Claims 4, 5, 9, 10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. in view of Demaray et al. and Sawada et al. as applied to claims 1, 6, 11 above, and further in view of Krivokapic et al. (U.S. Pat. 5,643,428).

The differences not yet discussed is wherein the shape of the holes of the first collimating element is the same as that of the second collimating element (Claims 4, 9, 14) and where the shape of the holes of the first collimating element is different from that of the second collimating element (Claims 5, 10, 15).

Regarding claims 4, 9, 14, Krivokapic et al. teach a tiered collimator comprising at least two tiers of collimators. In one embodiment the collimators in the two tiers are of identical configuration having hexagonal shapes for the holes. (Column 5 lines 62-68; Column 6 lines 1-10, lines 23-25)

Regarding claims 5, 10, 15, Krivokapic et al. teach that the collimators in the tiers may have a dissimilar size and/or configuration. (Column 6 lines 4-8) The tiers may be comprised of various geometric shapes. (Column 8 lines 1-10) Here the different configurations are interpreted by the Examiner to include different shapes.

The motivation for utilizing the features of Krivokapic et al. is that it allows for improved step coverage. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Krivokapic et al. because it allows for improving step coverage.

### ***Response to Arguments***

Applicant's arguments filed March 25, 2008 have been fully considered.

Applicant has addressed the 35 U.S.C. 112 1st paragraph rejection of the previous office action. Applicant has clarified the location of the mask means by amending the specification and pointing out in the drawings where the mask means is located. The Examiner has withdrawn the 35 U.S.C. 112 1<sup>st</sup> paragraph rejection based upon these amendments. Furthermore the Examiner provides a new rejection which includes a newly cited reference to Sawada et al. which shows anti-contamination means in the form of a mask (i.e. foil, corrugated metal

foil, embossed foil) applied on surfaces to prevent contamination. One of ordinary skill in the art when considering the teachings of Sawada et al. combined with Jang would apply the mask to the portions of the main body in order to prevent contamination. In this case the anti-contamination means would be applied but not limited to elements 103b, 107b and 100 to prevent contamination to the films being deposited. The Examiner awaits comments on to why this combination does not suggest Applicant's mask limitation of the claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-Th with every Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rodney G. McDonald/  
Primary Examiner, Art Unit 1795

Rodney G. McDonald  
Primary Examiner  
Art Unit 1795

RM  
April 1, 2008